In the Specification:

Please amend the paragraph at **page 7, lines 17 to 23**, as follows:

It is the object of the invention to arrange the heating conductor path(s) so that the same temperature prevails at each location of the functional layer of the sensor. It is a further object of the invention to provide a fundamental basis with which an exact temperature determination, and connected therewith, an exact temperature regulation or closed loop control of the temperature of ~~on~~ the functional surface, is made possible.

Please amend the paragraph at **page 8, lines 6 to 22**, as follows:

~~Advantageous further~~ According to further advantageous embodiments ~~are defined by the dependent claims. Hereby,~~ of the invention the partial heating resistance decreases or diminishes in a direction toward the sensor tip. This is achieved in that the path length of the heating conductor path and therewith of the meander band varies from partial section to partial section. In this context, the path length of the heating conductor band is given if one would pull apart the meander band like a thread that is looped or tangled in itself. The width of the heating conductor path can also vary in various partial sections, alone or together with the path length. Moreover, in addition to the supply lines of the heating layer, measuring supply lines are also applied, with which the exact temperature can be obtained, so that an exact

temperature regulation is made possible. In a further advantageous embodiment, the heating resistance to be measured can be adjustingly set, so that plural sensors comprise an identical resistance/temperature characteristic curve.

Please amend the paragraph at **page 11, lines 10 to page 12, line 7**, as follows:

Fig. 4a shows a heating layer arrangement with a heating conductor path 6, of which the extending path or progression forms a meander-band, which, beginning on the electric power supply line part 2 also referred to herein as electric power supply conductors 2, first extends modulatingly on the one side parallel to the x-axis, and then extends in a straight line along the sensor tip parallel to the y-axis, and then again extends on the other side modulatingly parallel to the x-axis back to the electric power supply line part 2. In this context, the heating layer 8 was produced with a platinum thick film paste, which was applied by a screen printing technique onto an aluminum oxide substrate and thereafter was fired. For achieving a homogeneous temperature profile, the partial heating resistance in the x-direction was varied. The partial heating resistance is proportional to the quotient of the path length l and the width of the heating conductor path b relative to a path distance in the x-direction.

In order to adapt the heating resistance to the desired temperature profile, that is to say the same or constant temperatures over the entire functional layer 4 in the example embodiment, the path length l of the heating conductor path 6 is shortened from partial section to partial section, in that the height or amplitudes of the meander-band 11 is steadily reduced from section to section. It would also be exactly as effective to reduce the modulation rate, namely the frequency of the direction change of the meander-band 11, with reference to a path distance in the x-direction.

Please amend the paragraph at **page 15, line 24 to page 16, line 7**, as follows:

From the previously described example embodiments it becomes clear, that the characteristic values, the width b of the heating conductor path and the path length l of the heating conductor path, are varied in order to obtain a homogeneous temperature distribution. These characteristic values can be varied both individually as well as in all possible combinations, ~~during~~ along the heating conductor path progression. Thereby, the path length can be varied both by the height A of ~~the~~ a meander-band 11 as well as by the modulation rate, i.e. the frequency of the direction change in the x-direction of the meander-band 11.

Please amend the paragraph at **page 16, line 12 to page 17, line 4**, as follows:

Fig. 6 shows a heating layer with a first additional arrangement ~~for measuring lines~~ of at least one temperature sensing conductor path 12 for sensing the temperature of the sensor section formed by the regions G + L. The conductor path 12 has, for example, two sensor conductors 12A and 12B connected to respective contact points 12A' and 12B' forming ~~determination. Here, two further paths 12 which~~ serve as voltage ~~taps,~~ taps. The sensor conductors 12A and 12B are ~~applied~~ parallel to the broad power supply line parts 2 which supply electrical power to the ~~of the heating layer. They are guided from the two ends of the~~ heating conductor path 6 ~~to~~ from the sensor connection side 9. The heating conductor path 6 is also referred to simply as heater 6. The sensor connection side 9 is also referred to as a conductor carrier section 9. By this arrangement, the supply line resistance, that is to say the voltage drop over the power supply line parts 2 or electric power supply conductors 2, is compensated over the path distance Z, but the portion of the resistance or respective voltage drop in the region G, which serves for the counter-heating or heat dissipation compensation, is ~~also~~ measured ~~together.~~ for producing a heat supply control signal. Since, however, the largest temperature gradient lies in the region G, as described in the preceding example embodiments, and because the greatest portion of the total path length of the ~~heating conductor path 6~~ heater 6 is provided ~~at~~ in the region G, the resistance arises as a combination of the resistance portions of the heating conductor path of the

partial path distances or length in the regions G and L. Only the resistance portion at L is measured at a temperature that is constant in the region of L. If the temperature gradient at G is the same for all conditions, then the measuring result can be exactly evaluated.

Please insert a new paragraph at **page 17, between lines 4 and 5**, as follows:

Fig. 6 also shows that the heater 6 has two meandering heater paths 6A and 6B connected in series with each other by an intermediate heater portion 6C. The series connection of 6A, 6B and 6C is connected to the electric power supply conductors 2.